

**DISTRIBUTION AND HOST PLANT RECORDS OF  
*AUSTROPLATYPUS INCOMPERTUS* (SCHEDL)  
(COLEOPTERA: CURCULIONIDAE: PLATYPODINAE)**

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**Abstract**

The known distribution of *Austroplatypus incompertus* (Schedl) is extended north to Dorrigo and west to Styx River State Forest near Armidale, New South Wales. Additionally, some previous discontinuities in the distribution are filled in with records from the central coast of New South Wales, Mt Wilson west of Sydney and Mogo and Bodalla on the south coast. The list of known host plants of *A. incompertus* is increased to 19 species by the inclusion of *Eucalyptus agglomerata*, *E. andrewsii*, *E. cameronii*, *E. laevopinea* and *E. resinifera*, all economically important timber species. It is clear from the present study that the current distribution of *A. incompertus* represents only a small subset of the range of the known hosts and it is therefore probable that the importance of this beetle as a potential pest has been underestimated.

**Introduction**

The majority of Platypodinae attack dead, dying or damaged trees and most attack hosts from a wide taxonomic range of plants (*i.e.* are polyphagous). The tropical platypodine *Crossotarsus externedentatus* (Fairmaire), for example, attacks over 100 species in over 60 genera (Beeson 1941). In general, tropical platypodines attack a greater range of hosts than do temperate species (Beaver 1979), a trend they share with the Scolytinae. At first glance this trend would appear to conflict with the fact that there are many more tropical platypodines than temperate ones (Wood 1993), because a greater trend towards a reduced host range, as a means of lessening host overlap and hence competition, would be expected where there is greater species diversity. It is likely that the large host range in the tropics is related to the greater plant species diversity and higher decomposition rates of tropical forests, making host specialisation more difficult due to the lack of suitable host material (Beaver 1989). However, not all tropical platypodines are polyphagous and high host specificity can sometimes occur, as for example in the following species which only attack living trees. Thus, at the extreme end, *Trachyostus ghanaensis* Schedl from West Africa is restricted to just one species, *Triplochiton scleroxylon* K. Schum. [Sterculiaceae] (Roberts 1960), while the Malaysian species *Dendroplatypus impar* (Schedl) is restricted to the genus *Shorea* [Dipterocarpaceae] (Browne 1961).

Similarly, *Austroplatypus incompertus* (Schedl) attacks only living members of the genus *Eucalyptus* [Myrtaceae] (Campbell 1969, Browne 1971, Harris *et al.* 1973, 1976, Wright and Harris 1974). *A. incompertus* causes visual and/or structural defects to timber harvested from these trees. The former results from the beetle boring and consists of black-stained holes, while the latter results from weakening of the timber due to fungal attack. Attacks by the beetle have been recorded only from the coast and tablelands of New



South Wales and eastern Victoria. Unfortunately, the latest list of known host species for the beetle (Harris *et al.* 1976) contains some anomalies, does not reflect current best knowledge and requires updating.

Given that *A. incompertus* is a pest species, an incomplete knowledge of its host plants has the potential to cause severe problems in the control or management of this beetle. There is little point in attempting, for example, to limit the numbers of a pest by applying a management strategy to those pests inhabiting a known host if unknown hosts nearby act as a source of reinfestation. In a similar vein, while it is known that the distribution of platypodines must, of necessity, be restricted to the geographic range of their hosts, there has never been a serious attempt to define the distribution of *A. incompertus* and the extent of the problem posed by its attacks is unknown. The aim of this study was to compile a list of currently known hosts and plot the present distribution of the species.

## Material

Host lists and distributions are based on data obtained from the literature and the following collections: ANIC - Australian National Insect Collection, Canberra; AM - Australian Museum, Sydney; NMV - National Museum of Victoria, Melbourne; NHM - The Natural History Museum, London and FCNI - Forestry Commission of NSW Insect Collection, Sydney.

## Results

### Host records

Originally, it was thought that *Austroplatypus incompertus* was relatively restricted in its host range, attacking only species of *Eucalyptus* belonging to the informal subgenus *Monocalyptus* (Kent and Simpson 1992). However, as a result of this study the host range now stands at 19 species, including five new records. The author collected adults and larvae from *E. agglomerata*, *E. andrewsii*, *E. cameronii* and *E. laevopinea* during fieldwork. A single adult collected from *E. resinifera* was found in the FCNI collection. Table 1 lists all hosts for which there are any records – including observations made during this study, specimens in collections and references in the literature. A single reference to *Eucalyptus eugenioides* Sieb. ex Spreng. (Wright and Harris 1974) is either an error or an exotic planting as the given locality is outside the range of this eucalypt species; therefore it has not been included in the table. As a result of taxonomic revision (Chippendale 1976), the reference to *E. scabra* Dum.-Cours. (Campbell 1969) has been included under *E. globoidea* Blakely and *E. gigantea* Hook. f. (Browne 1971) under *E. delegatensis* R.T. Baker.

It is worth noting that the current list of known hosts reflects a bias towards commercial timber species, since the beetle has been most studied in these species. This, combined with the fact that five new host species were recorded during the current study alone, suggest that the current host list is

probably not exhaustive and it is quite likely that further work may identify other host species.

**Table 1.** Host records for *A. incompertus* (all *Eucalyptus* species [Myrtaceae]).

Host Scientific name (Subgenus <sup>1</sup> ) (Common name <sup>2</sup> )	Source of host records	
	Literature <sup>3</sup>	Specimens
<i>E. (M.) agglomerata</i> (Blue leaved stringybark)		Collected this study (*)
<i>E. (M.) andrewsii</i> (New England blackbutt)		Collected this study (*)
<i>E. (M.) baxteri</i> (Brown stringybark)	1,3	
<i>E. (S.) botryoides</i> (Southern mahogany)	1,2,3	
<i>E. (M.) cameronii</i> (Diehard stringybark)		Collected this study (*)
<i>E. (M.) considiana</i> (Yertchuk)	1,2,3	
<i>E. (M.) delegatensis</i> (Alpine ash)	1,2,3,4,5	FCNI
<i>E. (M.) dives</i> (Broad-leaved peppermint)	2,3	
<i>E. (M.) fastigata</i> (Brown barrel)	1,2,3,5	Collected this study
<i>E. (M.) globoidea</i> (White stringybark)	1,3	
<i>E. (C.) gummifera</i> (Red bloodwood)	1,2	
<i>E. (M.) laevopinea</i> (Silvertop stringybark)		FCNI + Collected this study (*)
<i>E. (M.) macrorrhyncha</i> (Red stringybark)	1,2,3	
<i>E. (M.) muelleriana</i> (Yellow stringybark)	1,3	
<i>E. (M.) obliqua</i> (Messmate stringybark)	1,2,3,5	FCNI + Collected this study
<i>E. (M.) pilularis</i> (Blackbutt)	1,3,5	FCNI + Collected this study
<i>E. (M.) radiata</i> (Narrow-leaved peppermint)	1,2	
<i>E. (S.) resinifera</i> (Red mahogany)		FCNI (*)
<i>E. (M.) sieberi</i> (Silvertop ash)	1,2,3,4	FCNI + Collected this study

<sup>1</sup> Subgeneric classification used in Pryor and Johnson (1971) - *M* = *Monocalyptus*; *S* = *Symphomyrtus*; *C* = *Corymbia*.

<sup>2</sup> Source of common names from Brooker and Kleinig (1990).

<sup>3</sup> 1 = Harris *et al.* (1973, 1976); 2 = Wright and Harris (1974); 3 = Campbell (1969); 4 = Schedl (1968); 5 = Browne (1971).

(\*) = new record.



### *Distribution and locality records*

The distribution of the known host plants of *Austroplatypus incompertus* is considerably more extensive than the areas where the beetle has been recorded. Reliable locality records of *A. incompertus* are restricted to areas of eucalypt forest in the coastal areas and tablelands of New South Wales and eastern Victoria as shown in Figure 1. Much of the information shown in this figure is derived from Harris *et al.* (1976); however, in examining their data two anomalies were noted. Firstly, the reference to a locality near Tumbarumba (see Fig. 1 in Harris *et al.* 1976) is not supported in their list of known habitats of *A. incompertus* (see their Table 2) and represents an anomaly. Accordingly, this location is not included in Figure 1 below. Secondly, their reference to a 'Glenboy State Forest' (Harris *et al.* 1976) is probably a reference to Glenbog State Forest north of Bombala, as there is no known record of a 'Glenboy State Forest'.

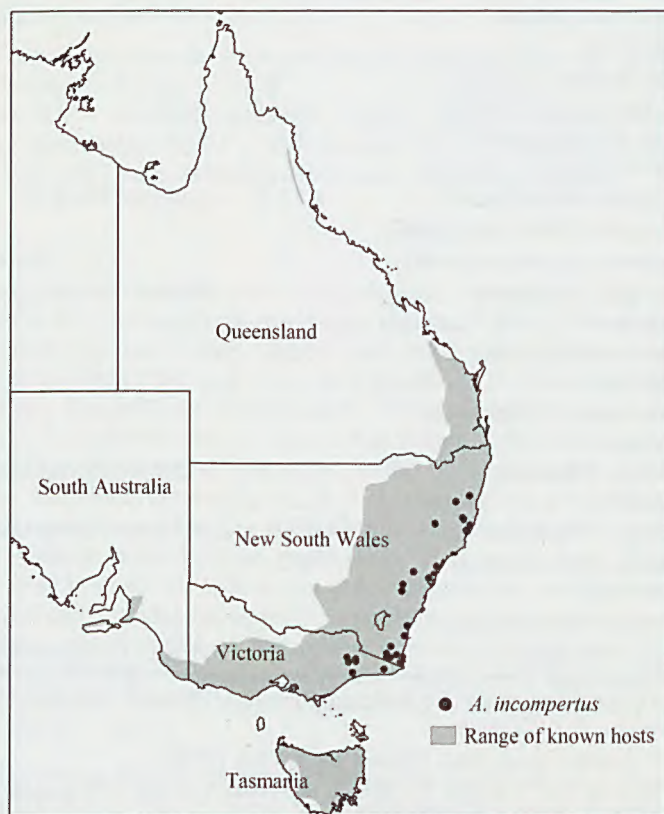


Fig 1. Recorded distribution of *Austroplatypus incompertus* and its known hosts.

Just as the current study increased the list of known host species, so it also extended the known range of *A. incompertus*. Future work might well extend this even further, especially considering that the known distribution of the beetle is only a subset of the known distribution of the current suite of host plants.

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### References

- BEAVER, R.A. 1979. Host specificity of temperate and tropical animals. *Nature* **281**: 139-141.
- BEAVER, R.A. 1989. Insect-fungus relationships in the bark and ambrosia beetles. Pp 121-143, in: Wilding, N., Collins, N.M., Hammond, P.M. and Webber, J.F. (eds), *Insect-fungus interactions. Royal Entomological Society of London Symposium*, Academic Press, London; 344 pp.
- BEESEON, C.F.C. 1941 (reprinted 1961). *The ecology and control of the forest insects of India and the neighbouring countries*. Dehra Dun, India; 253 pp.
- BROOKER, M.I.H. and KLEINIG, D.A. 1990. *Field guide to eucalypts. Vol. 1. South-eastern Australia*. Inkata Press Pty Ltd, Melbourne; 299 pp.
- BROWNE, F.G. 1961. The biology of Malayan Scolytidae and Platypodidae. *Malayan Forest Records* **22**: 1-255.
- BROWNE, F.G. 1971. *Austroplatypus*, a new genus of the Platypodidae (Coleoptera) infesting living *Eucalyptus* trees in Australia. *Commonwealth Forestry Review* **50**: 49-50.
- CAMPBELL, K.G. 1969. The horizontal borer. *Circular of the Entomological Society of Australia (N.S.W.)* **193**: 9-11.
- CHIPPENDALE, G.M. 1976. *Eucalyptus* nomenclature. *Australian Forest Research* **7**: 69-107.
- HARRIS, J.A., CAMPBELL, K.G. and WRIGHT, G.McK. 1973. Ecological studies on the horizontal or black borer *Austroplatypus* (= *Platypus*) *incompertus* (Schedl) (Coleoptera: Platypodidae) in forests of south-eastern Australia. Unpublished report. *Forests Commission Victoria Research Branch Report No. 31*: 1-22.
- HARRIS, J.A., CAMPBELL, K.G. and WRIGHT, G.McK. 1976. Ecological studies on the horizontal borer *Austroplatypus incompertus* (Schedl) (Coleoptera: Platypodidae). *Journal of the Entomological Society of Australia (N.S.W.)* **9**: 11-21.
- KENT, D.S. and SIMPSON, J.A. 1992. Eusociality in the beetle *Austroplatypus incompertus* (Coleoptera: Curculionidae). *Naturwissenschaften* **79**: 86-87.
- PRYOR, L.D and JOHNSON, L.A.S. 1971. *A classification of the eucalypts*. Australian National University, Canberra; 102 pp.
- ROBERTS, H. 1960. *Trachyostus ghanaensis* Schedl, (Col., Platypodidae) an ambrosia beetle attacking Wawa, *Triplochiton scleroxylon* K. Schum. *Technical Bulletin of the West African Timber Borer Research Unit No. 3*: 1-17.
- SCHEDL, K.E. 1968. New platypodid from Australia. *Memoirs of the Natural History Museum of Victoria* **28**: 15-16.

WOOD, S.L. 1993. Revision of the genera of Platypodidae (Coleoptera). *Great Basin Naturalist* 53: 259-281.

WRIGHT, G.McK. and HARRIS, J.A. 1974. Ambrosia beetle in Victoria. *Forestry Technical Papers* 21: 47-57. Forests Commission, Victoria.